from a biennial finely branched tap-root, simple or sometimes branched at the base or near the inflorescence, or both, glabrous, finely ridged: leaves alternate, ascending; blades elliptic-spatulate to narrowly elliptic, 1–2.5 cm. long, usually acutish, glabrous, paler beneath than above, narrowed at the base but sessile: racemes narrowly-cylindric, closely flowered, 1–11 cm. long, continuous: bracts narrowly ovate, acute, longer than the pedicels, deciduous: pedicels less than 1 mm. long, glabrous: sepals (upper one and lower 2) green with pink margins, the upper one oval or ovate, about 1.5 mm. long, the lower ones slightly shorter and narrower: wings (lateral sepals) pink, 3–4 mm., long at maturity, the orbicular or orbicular-oval blades narrowed into a short claw: corolla pink, about 3 mm. long, the lateral lobes broad, rounded, the middle lobe with about 6 minute appendages: anthers scarcely 0.5 mm. long: capsule somewhat quadrate, about 3.5 mm. long, sharply notched at the apex, about as long as the wings or slightly longer, glabrous: seed narrowly obovoid, or slightly cylindric-obovoid, about 3 mm. long, with short ascending hairs, the aril with two appressed lobes reaching to beyond the middle of the seed. Cleistogamous flowers borne on branches from the base of the stem produce capsules similar to those of the upper flowers.—Hammocks on off-shore bars, Coronado, opposite New Smyrna, to Turtle Mound, Florida. Type from Turtle Mound, May 24, 1926.

This recently discovered species differs from *P. polygama* in the narrow continuous racemes, the short pedicels which are exceeded by the bracts, the smaller flowers, with scant appendages on the middle petal, and the wings which are only slightly longer than the capsule or shorter.

John K. Small

BOOK REVIEWS

The American Species of Stipa*

Professor A. S. Hitchcock has published a noteworthy account of the American species of the large grass genus *Stipa*. Those of North Amreica are fully described, with citations of synonyms, comments upon the type specimens and copious lists of specimens cited. The type species is *Stipa pennata* L. of Europe. Forty species are recognized in North America,

* Contr. U. S. Nat. Herb. **24**: Part 7. 1925.

ranging from Guatemala northward to Alberta, Manitoba, Ontario and Massachusetts; none are known to inhabit the West Indies nor Central America south of Guatemala; those here first described are *Stipa saxicola* from Puebla, *S. leiantha* also from Puebla, *S. constricta* from Hidalgo, *S. angustifolia* from Coahuila, and *S. mexicana* from Mexico and Hidalgo.

Those inhabiting South America extend from Columbia and Venezuela to Chile, Brazil and Argentina; Professor Hitchcock recognizes eighty-nine species, describing nineteen of them as new to Science. No species are known to exist in the Guianas nor in northern Brazil.

The geographic distribution of the genus and of its species, as indicated by Professor Hitchcock, is significant. Its absence from the hot tropical regions, both insular and continental, implies physiological adaptation to the lower temperatures; from the Guatemala locality of *Stipa Ichu* (Volcano Agua), to the mountains of northern Colombia, where several species occur, is a distance of about 10 degrees of latitude or about 700 miles, through which no species are known to exist, and probably do not exist unless as rarities as yet unobserved. From central Florida (*Stipa avenacioides*) to northern Brazil, there is a much greater gap of about 35 degrees, or about 2400 miles.

Considering individual species, this striking discontinuous distribution appears as follows:—

Stipa speciosa, Colorado to California and Lower California—Bolivia, Chile, Argentina.

Stipa Ichu, San Luis Potosi to Guatemala—Colombia to Bolivia and Argentina.

Stipa tenuissima, Texas and New Mexico to Puebla—Argentina.

Stipa mexicana, Mexico and Hidalgo—Colombia, Venezuela, Peru.

Stipa mucronata, Nuevo Leon to Tlaxcala—Colombia to Chile and Argentina.

While similar discontinuous distribution is well known in other plants, these detailed studies of *Stipa* provide a convenient opportunity for calling attention to it as a very interesting phenomenon, its cause or causes as yet obscure, perhaps attributable to migratory birds.

The three plates of figures contain illustrations of the fruits

of all the species found in North America. The fruits are so characteristic that the species can usually be identified from these alone. N. L. Britton

Life of Plants*

The title of this little book is too modest and conservative. The author's aim as given in the preface is "to suggest that Science is more than a body of doctrine—an illumination of life." The first sentence of the introductory chapter "the study of plants is an adventure unto another world, the inhabitants of which are strangely different from those of the animal world," suggests what the reader will find throughout, that the book is written in a manner to make the life of plants real and active. As far as is possible in a book of its size, the latest discoveries in plant physiology are given in simple language that can be understood by the non-scientific reader. The descriptions of colloids and their work in absorption, of the part played by enzymes, of the growth of the cell, of the responses to stimuli and their transmission are all clear and definite. Each of the nine chapters begins with an outline of the contents. Chapter VIII, for example:—"Variation and heredity; Evolution; Reproduction; asexual and sexual; Cell and nuclear division; The Chromosomes as the material bases of Heredity; The experimental breeding of plants; Mendelian inheritance." The explanation of Mendelism is accompanied by simple diagrams and one plate. Some of the modifications and corollaries of the law are explained or suggested. If the general reader carries away the idea that Mendelian inheritance is the chief factor in evolution, the concluding paragraph of the chapter shows that the author did not intend to give such an impression. "The task with which this chapter was charged is now done. It has given a glimpse of the Mendelian threads out of which the fabric of life is woven and by which that fabric is maintained and renewed. The larger enterprise, to inquire into the nature of variation, and to consider the part played by natural selection or the influence of environment in evolution, may be left to the authors of the companion volume on the lives of animals;

* Life of Plants, Sir Frederick Keeble, XII, 256 pp., 51 fig. Clarendon Science Series. Oxford University Press, American Branch, New York, 1926, $1.75.